

Reversing the Loss

A Strategy for Protecting & Restoring Wetlands in Wisconsin



Reversing the Loss: A Strategy for Protecting & Restoring Wetlands in Wisconsin

Developed by the Wisconsin Department of Natural Resources Wetland Team
December 2000



Natural Resources Board

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Cover: photo by Bob Queen, Sandhill Wildlife Area

This strategy was developed by the Wisconsin Department of Natural Resources under Grant No. CD-97511501-0 from the U.S. Environmental Protection Agency, Region 5.



Like so much of our wildlife, ducks need wetlands. Behind every duck, like this mallard hen and her ducklings, is a food web composed of dozens of insect and plant species, suitable wetland and upland habitat, and a natural flow of clean water.

Photo: Scott Nielsen

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Reversing the Loss charts a course for DNR programs involved in wetland education, protection, restoration, enhancement and management. The strategy guides all current and future wetland-related policy and program directions and seeks to fit existing programs and future policies into a cohesive scheme with a common vision and goals. Near- and long-term actions will be consistent with elements of this statewide strategy.



Introduction

Great Blue Herons depend on healthy wetlands for food such as frogs and fish.

Photo: John Archer



Introduction

Our Vision

We promote, protect, restore, enhance and preserve the quantity, quality and diversity of Wisconsin's wetlands as a critical component of ecosystems essential to the health and quality of life of our state's diverse citizenry, plants, animals and landscapes.

Former Natural Resources Board Member Betty Jo Nelson asked about the department's vision and goals for protecting and restoring Wisconsin's wetlands. We told her that we have many different programs with wetland responsibilities and their own individual goals, but no "big picture" strategy for wetlands. The Wetland Team was assigned to develop a department vision and goals for protecting and restoring Wisconsin's wetlands. The following pages contain that vision, *Reversing the Loss—A Strategy for Protecting and Restoring Wetlands in Wisconsin*.

This document, along with the Department Strategic and Strategic Implementation plans, will be used to guide wetland staff in their work over the next six years.

As part of the process, the Wetland Team has identified performance measures by which the success of the plan can be measured and analyzed. The Wetland Team is committed to evaluating progress toward achieving the goals of the plan and to reporting that progress. The plan will be reviewed and modified, as appropriate, each biennium.

Wisconsin wetlands cannot be protected and managed without help from our partners and citizens. We invite you to check our progress and to offer your comments (look for the wetland page at www.dnr.state.wi.us) as we chart a course for current and future department policies and programs involved in wetland education, protection, restoration, enhancement and management.



Once considered wastelands and breeding grounds for mosquitoes that brought disease and death, Wisconsin wetlands are now recognized for providing critical habitat for wildlife, water storage to prevent flooding and protect water quality, and recreational opportunities for wildlife watchers, anglers, hunters, trappers and boaters. While better understood and no longer destroyed as rapidly as they were during Wisconsin's first century of statehood, wetlands continue to be lost and degraded today.

Only 53 percent, or 5.3 million acres, remain of the 10 million acres of wetlands present before statehood — and many of those wetlands are in peril. Wetlands continue to be drained for agriculture and filled for development and roads. Others are deteriorating as changing land use around them dramatically alters water flows to them and causes erosion, sedimentation and poor water quality. Nonnative species such as purple loosestrife are invading wetlands and eliminating native plants, decreasing species diversity. Even some projects intended to improve wetlands are contributing to the loss of wetlands' natural functioning and species diversity.

The result decreases the benefits wetlands themselves bring, and decreases the overall health and functioning of the other ecological systems in the same watershed. Because Wisconsin wetlands are so interspersed with other major community types in the state—lakes, rivers, prairies, forests—any loss detracts from the diversity of species and the ecological health of these other landscape communities.

Federal, state and local regulations, wetland restoration, and acquisition programs are making progress in slowing further wetland loss. However, laws will never prevent all losses nor will financial resources ever be enough to acquire all the wetlands that need protection.

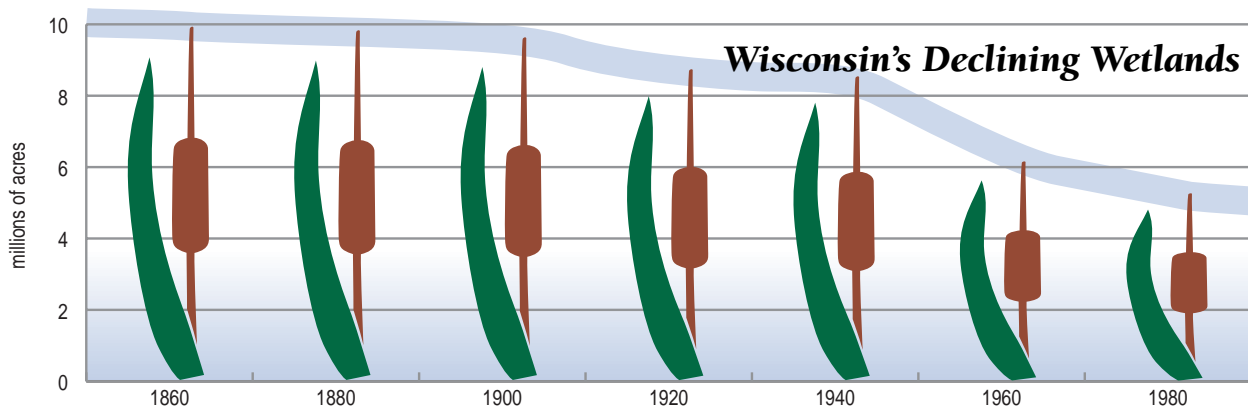
To reverse the loss, and to restore the benefits of wetlands, we must act on many fronts. We recommend the following strategy:

✧ ***Strengthen relationships with property owners, nonprofit conservation organizations and local governments.***

Over 75 percent of the state's wetlands (over 4 million acres) are in private ownership. We will need to enlist wetland owners, nonprofit conservation organizations and local governments in preserving and restoring wetlands on private property while sustaining agriculture, forestry, recreation, and other wetland uses, including development, when compatible with wetland health. An established dialogue with wetland owners, and focused outreach, education and incentives along with technical assistance, will be necessary components to make this strategy work.



Kakagon Slough, on the Bad River Reservation along Lake Superior, is one of Wisconsin's crown jewels. Protected by the tribe, this wetland hosts a tremendous variety of plants and animals, including the state's largest wild rice beds.
Photo: Bob Queen.



The pace of wetland loss accelerated after drainage technology improved in the 1940s.

➤ **Manage wetlands to protect diversity of species, wildlife health, and ecological integrity.**

Wetlands are naturally productive and interspersed among our state's aquatic and terrestrial communities. Because protecting, restoring and enhancing wetlands contribute significantly to the ecological health of other biological communities, wetland communities should be a focus when managing Wisconsin's biodiversity. Wildlife that depends on water — everything from water fleas to mink to osprey — require adequate habitat and protection from ecosystem contaminants. Establishing a system of connected aquatic and terrestrial features for each ecological region will help target resources and activities to areas with the highest ecological potential. Acquiring exceptionally high quality or scarce wetland communities such as calcareous fens and floodplain forests, and managing them to preserve a diversity of species, are key aspects of this strategy.

➤ **Streamline our regulatory approach for permits and restoration activities in wetlands.**

Because our state regulatory and enforcement program for wetlands is based primarily upon federal laws and regulations, several state and federal agencies are typically involved in every permitting decision. That system often leads to inefficient, inconsistent decision-making, which frustrates wetland owners and doesn't sufficiently protect wetlands. We can improve the process by identifying and removing barriers to efficient and effective decision-making. We can also eliminate duplication and provide consistency by establishing a state wetland protection program that supersedes federal regulation and oversight. We can encourage local officials and development interests to avoid wetlands or incorporate them into their project as a site amenity, reducing the need for wetland permits. New laws have given us authority to seek enforcement action against landowners who violate state wetland laws, but also to allow us to consider applicants' proposals for wetland compensatory mitigation as we decide whether to allow their projects to proceed. In certain cases, landowners will be able to compensate for a small amount of unavoidable filling in an already degraded wetland by restoring or creating a high quality wetland in another location.





A growing number of Wisconsin farmers are restoring wetlands on their land.

Photo: Bob Queen

✧ ***Develop and use modern technology to map, monitor, protect and manage wetlands.***

Giving the public and staff a common up-to-date source of wetland information to use in making decisions is essential for the preceding strategies to succeed. An integral component of wetland information is the Wisconsin Wetland Inventory, which consists of over 1,700 maps showing the location and types of wetlands in Wisconsin. The cycle for updating inventory information needs to be shortened from its current 24 years. Making the wetland inventory available for planning and managing wetlands, in addition to its current use in regulating wetlands, is crucial to the success of this strategy, as is developing a unified tracking and reporting system.

Existing Wetlands

Owner	Acres	Percent
State	515,718	9.7
County	458,687	8.6
Federal	345,067	6.5
Private	4,011,920	75.2
Total	5,331,392	100.0

Because more than 75 percent of Wisconsin wetlands are privately owned, landowners hold the key to conserving wetlands to provide wildlife habitat, clean water, flood protection, and recreation.



Goal A

Biologists can help landowners recognize the value of their wetlands to plants and animals.
Photo: Bob Queen



Strengthening relationships with wetland owners, nonprofit conservation organizations and local governments

Outreach and Technical Assistance for Wetland Stewardship

From *The Department Strategic Plan: Making People Our Strength* — Involve individuals, businesses, governments, tribes and organizations in managing natural resources and protecting human and wildlife health by sharing knowledge, responsibility, decision-making, recognition and costs.

The vision

Public and private owners of wetlands make sound decisions to use their land in a way that sustains both wetland and socio-economic benefits. They recognize and understand the functions and values of the wetlands they own and realize the benefits of enrolling their wetlands in watershed conservation programs. Land is developed in such a way that wetlands and other natural resource features are preserved and protected as valued components of the landscape.

The strategies

1. **Assure** that all department programs and activities give the same fundamental message to public and private landowners, including all DNR land managers. Encourage other state, federal, tribal and local agencies in presenting common messages.



2. **Involve** agricultural and nonprofit conservation organizations, academic institutions, local associations, tribes, and government agencies in delivering educational and technical assistance and outreach to wetland owners, nonprofit conservation organizations, and local government officials.
3. **Educate, encourage** and **assist** developers, consultants, contractors and municipal officials to consider wetlands as site amenities when planning subdivisions and other projects.
4. **Inform** wetland managers and landowners of the benefits of preserving wetland functions and values while sustaining wetland compatible agriculture, forestry, hunting and other beneficial uses of their land.
5. **Guide** wetland owners to voluntarily enroll their lands in watershed and landscape conservation management programs — the Conservation Reserve Program, Conservation Reserve Enhancement Program and Wetland Reserve Program among them — and to actively engage in efforts to restore wetland functions, control invasive species and improve wildlife habitat and water quality on their land.
6. **Develop** a self-help program for landowners, citizens and school groups to monitor and provide necessary information on the health and ecology of their wetlands and publicly owned wetlands.
7. **Demonstrate** desirable/model land use management techniques on all lands the state owns and manages.
8. **Develop** a mechanism for fostering dialogue with the agricultural and transportation communities.
9. **Promote** the development of a “Wetland Owners Association,” or strong wetlands advocacy within existing landowner groups, to inform, educate, exchange information and advocate for sound wetland management.
10. **Support** the incorporation of wetlands education into existing youth programs.



Citizen monitors identify wetland plants and their prevalence to assess wetland health.

Photo: Bob Queen



Wetland stewardship begins early.

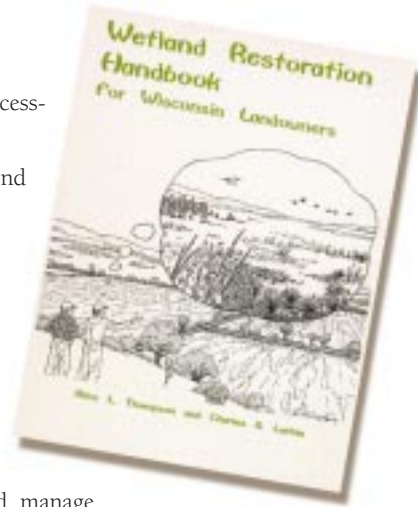
DNR photo archives



The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- **Reversing the Loss** has been widely distributed and has agency and public awareness and support.
- The department's wetland policy, Chapter NR 1.95, Wis. Administrative Code, reflects the themes of **Reversing the Loss**.
- DNR administration routinely involves the Wetland Team in wetland policy and management issues.
- We have a **Wetland Restoration Handbook** publication to help landowners better understand, manage and enjoy their wetlands.
- A convention targeting wetland owners has been held once.
- There is a wetland page on the DNR web site that is linked to other related websites.
- Technical assistance is being offered for public and private wetland management.
- We have a wide assortment of current wetland outreach materials.
- We produce a **Guide to Understanding Wetland Health** for use by volunteers and wetland owners.
- We hold workshops and listening sessions targeting farmers and transportation interests.
- We develop and conduct a cooperative training program with the Corps of Engineers, Environmental Protection Agency, Natural Resources Conservation Service, Fish and Wildlife Service, and other federal, state and local agencies.
- We hold regional seminars for department land managers, citizens, local officials, developers and consultants to explain and promote the "conservation design" approach to planning low impact development. Such an approach stresses natural features such as wetlands as site amenities.
- We give recognition awards to outstanding partners in stewardship.



Restoration projects, like this one in Manitowoc County, restore habitat for birds such as bobolinks, teal and sandpipers.

Photo: Tim Grunewald





Goal B

Greater Yellowlegs rest and fuel up on the Mississippi River backwater marshes near La Crosse.

Photo: Bob Queen.

Incentives for Wetland Stewardship

From *The Department Strategic Plan: Sustaining Ecosystems* — Protect ecosystems through acquisition of land, easements or other innovative strategies.

The vision

Incentives reduce the property tax burden for wetland owners, encourage ecological restoration of altered and degraded wetlands, and reward the perpetual preservation of wetlands and associated upland buffer areas.

The strategies

1. **Encourage** the Department of Revenue to develop mechanisms for the appropriate assessment and evaluation of wetlands.
2. **Support** and **promote** reduced property taxes on wetlands enrolled in a “managed wetland” or “preserved wetland” program, which have a specified management plan for the wetland.
3. **Support** and **promote** reduced taxes on wetland property and other conservation lands that are perpetually protected by easements, transfer of development rights or other effective agreements.
4. **Establish** a “Wetland Protection and Restoration” grant program to maintain desirable wetland functions and values or restore altered and degraded wetlands and buffer areas.
5. **Promote** development of local incentives for protection and restoration of wetlands through county and local comprehensive planning and zoning efforts.





The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We have a position paper on current Wisconsin wetland taxation and assessment and have developed a department policy on appropriate evaluation and assessment of wetlands.
- Based on the position paper and developed policy, we have initiated discussions and have pursued changes to wetland assessment with the Department of Revenue.
- We produce a plainly worded guide to wetland incentive programs and update it at least annually.
- We produce a landowners' guide to wetland property assessment, including how they can assure that their wetlands are assessed correctly.
- We produce an annual report on state and federal incentive program accomplishments.
- We produce a proposal for managed wetland tax law program, similar to the forest tax law program.
- We have presented educational sessions at local tax assessors meetings.
- We have a wetland grant program.
- We have conducted staff training and provided technical support for helping communities and counties include wetlands information and protection goals in their local plans.
- We have “models” for new incentives or regulatory programs implemented at local or county levels.

*Water lilies provide beauty
and good bass fishing in
lake-edge marshes.*

Photo: Bob Queen.





Goal C

Blanding's turtle, a threatened species in Wisconsin, depends on high quality wetlands and safe access to upland nesting areas.

Photo: A.B. Sheldon

Managing wetlands for biodiversity and ecological integrity

Managing for Biodiversity, Health and Integrity

From *The Department Strategic Plan: Sustaining Ecosystems* — The state's ecosystems are balanced and diverse. They are protected, managed, and used through sound decisions that reflect long-term considerations for a healthy environment and a sustainable economy.

The vision

Our state's wetland communities are *sustainable*, diverse and interspersed with healthy aquatic and terrestrial communities such as forests and lakes. They are protected, restored and managed to contribute to ecosystem health.

The strategies

1. **Develop** criteria to identify critical wetlands and important water and land features within our water basins to maintain and restore the diversity of *native* plants and animals to establish a system of connected aquatic and terrestrial features for each ecological region to target resources and activities with the highest ecological potential.
2. **Identify** such high quality areas through our land and water basin partnerships, which include DNR staff, area and local government staff and civic representatives. Consider ecosystem needs, and physical and biological watershed processes as well as social values, uses and perceptions.





3. **Protect** aquatic-dependent wildlife from reproductive and developmental problems resulting from their exposure to contaminated water and aquatic organisms.
4. **Develop** a coherent, ecologically based management plan for each water basin which recognizes the rights and needs of multiple landowners. Seek approval by state and local government and acceptance by landowners and interest groups.
5. **Focus** our protection, restoration and management resources and activities in these high quality areas and seek local partnerships to accomplish mutually beneficial projects.
6. **Develop** a wetland invasive species management program.
7. **Improve** water quality standards and watershed management efforts and reduce polluted runoff impacting wetlands.

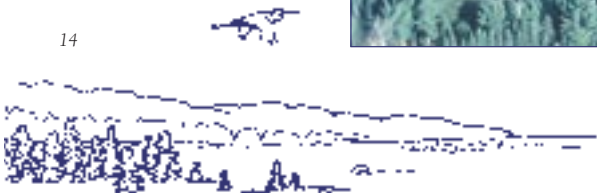
The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We have developed and begun testing new tools to assess wetland health, and to engage citizens in monitoring wetland health.
- We have distributed basin-planning guidance on how to identify wetlands in need of protection, restoration or management.
- The Geographic Management Units' "State of the Basin" reports identify wetlands in need of protection, restoration or management and natural wetland areas that could be significantly impacted by exotic species in the foreseeable future.
- We have refined wetland water quality standards to protect aquatic-dependent wildlife from reproductive and developmental problems resulting from ingestion of contaminated water and aquatic organisms.
- Our invasive species management program has a successful purple loosestrife control program and we are conducting research into control of other invasive species such as reed canary grass and phragmites.

Wetlands contribute significantly to the health of nearby lakes, rivers, prairies and forests.

Photo: Eric Epstein





Goal D

Tamarack and black spruce above a wet meadow in the 8,048 acre Bibon Swamp State Natural Area in Bayfield County. This vast wetland complex of conifer and hardwood swamp, alder thicket and sedge meadow was purchased to protect the wide diversity of plants and animals living there.

Photo: Eric Epstein.

Protecting Wetland Ecosystems through Acquisition

From *The Department Strategic Plan: Sustaining Ecosystems* — Protect ecosystems through acquisition of land, easements or other innovative strategies.

The vision

Unique, exceptionally high quality or scarce wetland community types and associated aquatic and terrestrial communities are held in perpetuity through acquisition of land or easements by federal, state and local government or nonprofit conservation organizations for future generations.

The strategies

1. **Develop** the criteria and process to identify wetlands for acquisition or easements by the department and others.
2. **Protect** wetland complexes with high ecoregion or watershed values through acquisition of land, easements or other innovative strategies by federal, state and local government and nonprofit conservation organizations.
3. **Use** the master-planning process to manage, maintain and restore wetlands on acquired land to support diverse flora and fauna, to provide watershed and ecoregion functions and values, and to serve as models for good wetland management.





4. **Guide** wetland owners to voluntarily enroll their lands in watershed and landscape conservation management programs such as the Conservation Reserve Program, Conservation Reserve Enhancement Program and Wetland Reserve Program, and to actively engage in efforts to restore wetland functions, control invasive species and improve wildlife habitat and water quality on their land.

The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We have inventoried existing acquisition programs and know their goals and plans.
- We have wetland goals/criteria for all of our acquisition and easement programs.
- We have an acquisition and easement priority system for wetlands, based on watershed wetland category and rank and whether the wetland is protected.
- We have identified our unique wetland types in each water basin.
- We know how many wetlands we wish to buy in each basin and we fit these into the department's 50-year acquisition plan.
- We use DNR Lake Protection Grants to protect lake-fringe wetlands.
- We have identified other grant programs that can be used to protect wetlands through acquisition and easements.

Fringed gentian, a delicate wetland flower.

Photo: Bob Queen





Bird-watching at Horicon Marsh, Wisconsin's most heavily used restored wetland.

Photo: Bob Queen

Restoring Wetlands

From *The Department Strategic Plan: Sustaining Ecosystems* — Maintain and restore terrestrial, wetland and aquatic ecosystems that support diverse flora and fauna and provide landscape-scale ecosystem functions from flood control to groundwater recharge.

The vision

Wetland restoration and enhancement projects consider the full range of ecological concerns and are planned to meet multiple purposes. These projects help recapture previously drained or filled wetlands and result in a net gain of wetlands as measured by acreage and function.

The strategies

1. **Identify** and **characterize** watershed wetland resources more completely and identify critical functions of the major types of wetlands in each ecoregion.
2. **Clearly define** “success” criteria and performance measures to guide and evaluate restoration projects.
3. **Identify**—in cooperation with our partners—priority restoration sites in each watershed based on the wetlands’ function and value, the potential to successfully restore important functions and values, and the opportunity to restore a watershed’s ecological integrity.
4. **Rank** identified wetland restoration needs on both a statewide and a watershed basis.
5. **Identify** and **develop** funding sources for projects.
6. **Coordinate** restoration efforts with partners to avoid duplication and to enhance restoration efforts.



7. **Develop** an efficient regulatory process for wetland restoration.
8. **Monitor** wetland restoration and enhancement activities in cooperation with others to determine if they meet their goals and what techniques work.
9. **Apply** lessons learned.



Setting realistic goals—and finding the right site—are critical to successful wetland restoration.

DNR photo archives

The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We have conducted an intra-agency “Summit” to draft definitions, success criteria, monitoring requirements and other issues.
- Using ideas from the intra-agency “Summit,” and after input from other agencies, partners, stakeholders, and interested parties, we have developed clear definitions of terms, success criteria and a monitoring plan based on project purpose and goal.
- We have set basin and/or regional restoration and enhancement acreage goals.
- We have an adequately funded program to prevent and manage invasive species in wetlands. This includes training/education for identifying, reporting and controlling infestations, and adequate biocontrol funding.
- We have published and distributed a Wetland Restoration Handbook for Landowners.





Goal F

Wetlands play an important role in providing habitat for migratory waterfowl populations.

Managing and Enhancing Wetlands for Specific Functions

From *The Department Strategic Plan: Sustaining Ecosystems* — Meet, and where possible exceed, the public vision for an environment that supports sustained economic, ecological, aesthetic, recreational, agricultural, and other uses.

The vision

Our statewide plans and programs allow wetlands to be managed, in certain cases, to provide a single primary purpose such as stormwater retention or habitat for migratory waterfowl.

The strategies

1. **Develop** criteria and guidance for identifying the circumstances under which function-specific management might be preferred.
2. **Assure**, within a statewide tracking and reporting system, that projects to restore or enhance wetlands to provide a specific function can be separately reported.
3. **Monitor** wetland management and enhancement activities in cooperation with others to determine if they meet their goals and to learn what long-term impacts their projects have on watershed health and general resource values.
4. **Develop** success criteria, performance measures, and recommendations using monitoring results to determine the best methods to optimize wetland benefits.





The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We have conducted an intra-agency “Summit” to draft definitions, success criteria, monitoring requirements and other issues.
- Using ideas from the intra-agency “Summit,” as well as input from stakeholders, we have developed clear definitions of terms, success criteria and a monitoring scheme based on project purpose and goal.
- We have criteria and guidance for function-specific management or restoration.

Man-made detention ponds, like this one in Madison, can help to store and filter polluted runoff from surrounding residential and commercial areas.

Photo: Bob Pitt





Goal G

Since the early 1970s, when this photo was taken showing wetlands illegally filled to install a sewer, legal protections have slowed wetland destruction. State wetland officials also can now order violators to restore wetlands they harm.

Photo: Scott Hausmann

Simplifying our regulatory approach for wetlands

Simplifying Regulation and Enforcement

From *The Department Strategic Plan: Making People Our Strength* — Recognize and consider the short- and long-term implications of department regulations and management decisions.

The vision

We have a comprehensive, state-administered wetland regulatory program that is simple, straightforward and reasonable, and we make decisions in a predictable, timely and fair manner.

The strategies

1. **Improve** the regulatory process by identifying and removing barriers to efficient and effective decision-making, in cooperation with the regulated public. Goals should increase the predictability, timeliness and fairness of the regulatory process.
2. **Develop** a proactive information and education program in which department staff work directly with local officials and developers to encourage them to avoid wetlands or incorporate the wetlands into their projects at the beginning stages of project planning. The idea is to allow them to design their projects in ways that manage and protect wetlands and avoid the need for a permit.
3. **Develop** a comprehensive, state-administered wetland protection program. This would include state legislation authorizing and funding the department to establish a wetland protection program. This would simplify the current multiple state and federal agency involvement in the permit process.





4. **Develop** an effective wetland enforcement program that discourages permit violations and illegal wetland fill activities. This program would include a tracking and publicly accessible violation reporting system. Ideally, the wetland enforcement program would be comparable to the uniform citation program, with sufficient penalty and abatement (restoration) provisions that could be dealt with expeditiously by local courts.
5. **Enhance** the current permit tracking and public notice systems.
6. **Provide** opportunities and technical assistance for local governments seeking to develop wetlands regulatory programs that are as protective as the states.
7. **Promote** the development of new mechanisms for wetland protection through regulatory programs at all levels—local, county, state and federal.

The performance measures

At the end of the six year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We have enforcement authority for water quality certification decisions.
- We have surveyed our wetland programs and identified program gaps and deficiencies. We have also updated the 1991 study of assuming the federal Clean Water Act Section 404 permit program and have recommended to administration whether or not to try to assume the program responsibilities.
- We have investigated ways to measure the efficiency and effectiveness of our wetland protection programs beyond the normal permit tracking.
- We have increased staff and management training to improve efficiency and effectiveness of regulatory decision-making.
- In cooperation with external partners, we have developed a course outline and sponsored a recurring series of regulatory workshops for local officials, consultants, and developers. The workshops emphasize wetlands as landscape amenities and how to “avoid and minimize” wetland impacts.
- We have identified gaps in other regulatory programs in which wetlands are not being adequately protected, i.e., well codes, privately owned wastewater treatment systems, drainage, and construction site erosion.
- We have an expedited permitting process for wetland restorations.
- We have a procedure to resolve interagency (ex. DNR-corps) disputes regarding wetland boundaries.

When wetlands aren't protected, the result can be disastrous, as residents of Kenosha County found out.
DNR photo archives





Goal H

Blue flag iris, a delicate denizen of shallow marshes and sedge meadows.

Photo: Bob Queen

Compensatory Mitigation

From *The Department Strategic Plan: Sustaining Ecosystems* — Provide the tools, information and incentives needed for governments, people and their organizations to make environmentally sound land use and land management decisions that protect ecosystems and improve quality of life.

The vision

We have an easy-to-understand compensatory mitigation program available to permit applicants that encourages them to consider the full range of wetland impacts when planning development projects. Our compensatory mitigation program recognizes the need to avoid and minimize harm to wetlands, to replace wetland functions and to enable fair and common sense regulatory decisions.

The strategies

1. **Pursue** general statutory authority authorizing consideration of compensatory mitigation in the regulatory process, enforcement authority and the resources to conduct the program.
2. **Develop** a compensatory mitigation program that maintains the avoid, minimize, compensate sequence and does not require mitigation for every project.
3. **Develop** mechanisms to assure that compensatory mitigation projects result in appropriately sited high quality wetlands that meet wetland function goals.



The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- Legislation authorizing compensatory mitigation is passed and signed into law.
- We have adequate resources to implement and manage a compensatory mitigation program.
- Necessary rules have been developed.
- We have defined the questions to be answered for an annual report on compensatory mitigation in Wisconsin, including an inventory.
- We develop a guide to understanding Wisconsin's compensatory mitigation program and conduct training for state employees and interested parties.

Restoration of a high quality meadow-marsh complex in Kenosha County for compensatory mitigation.

DNR photo archives.





Goal I

Cedar swamps are increasingly rare but critically important for bobcats, orchids and warblers.

DNR photo archives

Using modern technology

Using Modern Technology to Map, Monitor, Protect and Manage Wetlands

From *The Department Strategic Plan: Making People Our Strength* — Find and develop ways to enable department employees, together with our external partners, to fulfill the department's mission by: working across disciplines; seeking innovative ways to improve services; keeping abreast of technological advances; and exercising appropriate leadership.

The vision

The public and staff have an up-to-date source of wetland information that can be easily combined with other environmental and geographical information. Staff use best available technology to set priorities, make decisions and accomplish tasks.

The strategies

1. **Increase** the use and accessibility of the Wisconsin Wetland Inventory (WWI) for the full range of planning, policy, management, and regulatory applications at watershed, regional and statewide levels by overcoming technical barriers to its incorporation in the full range of GIS applications.





Boardwalk at Cherokee Marsh in Madison.
Photo: Bob Queen

2. **Increase** the availability of wetland information to the public including frequently asked questions, information about regulations, public notices, resources for technical assistance, notices of upcoming events, and funding sources. Provide a forum and opportunities for interested parties to share information about current issues and success stories.
3. **Update** the Wisconsin Wetland Inventory more frequently.
4. **Develop** with our partners a unified system to track and monitor restoration, preservation, management, compensatory mitigation, and regulatory actions across multiple programs and agencies.
5. **Develop** a comprehensive, integrated inventory of natural resources linked to the department's Aquatic Terrestrial Resource Inventory (ATRI) for watershed and ecoregion level planning and permit review.
6. **Improve** the efficiency of permit reviews, record-keeping and database management by providing the best available technology and training to field staff.
7. **Use** innovative technology (Internet, GIS/database, etc.) to make wetland mapping and permitting information accessible to local zoning officials and the general public.

The performance measures

At the end of the six-year Department Strategic Plan implementation period (2001–2007), we will feel successful if:

- We investigate and incorporate new methods and technology for the wetland inventory.
- We have a complete statewide digital wetland inventory update.
- We implement a staff-training plan that uses methods including video and self-study computer programs.
- We have a wetland page on the department web site.
- We have obtained adequate resources for the wetland inventory.
- Wetland information is accessible through the Aquatic and Terrestrial Resources Inventory and available online to the public.
- We have the equipment that staff need available and readily accessible.
- We have a citizen-monitoring program and we provide our citizens with an annual report card or snapshot as part of a larger report on basin ecosystem health.

A computerized inventory of wetlands and rare and endangered plants and animals allows DNR cartographers to create a map showing wetlands DNR would like to protect as part of the 50-year Land Legacy project.

Photo: Bob Queen





*“To arrive too early in the marsh is an adventure in pure listening:
the ear roams at will among the noises of the night, without let or hindrance from hand or eye.”*

— Aldo Leopold, A Sand County Almanac

Photo: Bob Queen

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